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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/501,607

03/08/2005

Vilho Nissinen

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EXAMINER

ZHAO, XIAO SI

ART UNIT

PAPER NUMBER

4172

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/501,607	Applicant(s) NISSINEN ET AL.	
	Examiner XIAO ZHAO	Art Unit 4172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-16 is/are pending in the application.
- 4a) Of the above claim(s) 6-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/14/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A telephone call was made to Mr. Stiennon at (608) 250-4870 to request an oral election to the restriction requirements below. Mr. Boucher elected claims 11-16 and thus claims 6-10 are withdrawn from examination. Claims 6-16 are pending.

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 6-10, drawn to a nozzle array with a plurality of liquid coating nozzles arrayed in a transverse direction across a paper web.

Group II, claim(s) 11-16, drawn to a method of coating a paper web using a plurality of high-pressure liquid coating nozzles.

PCT:Lack of Unity

Posteriori

Lack of unity of invention may be may only become apparent "a posteriori," that is, after taking the prior art into consideration, in the case of independent claims to A + X and A + Y, unity of invention(i.e. species) is present a posteriori as A is common to both claims.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or

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corresponding special technical features for the following reasons: the special technical feature which is referred to Annex B of Appendix A1 of the MPEP (Administrative Instructions under the PCT, "Unity of Invention"). The express "special technical features" is defined as meaning those technical features that define a contribution which each of the inventions, considered as a whole, makes over the prior art." (Rule 13.2). Unity exists only when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding claimed special technical features. In this case, the technical feature shared by each invention is the use of nozzle array on a paper web.

The question of unity of invention has been reconsidered retroactively by the examiner in view of the search performed; a review of Vähäkuopus et al. (US 6627261 B1) makes clear that the inventions of the groups I and II lack the same or corresponding special technical feature because the cited reference(s) appear to demonstrate that the claimed technical feature does not define a contribution which each of the inventions, considered as a whole, makes over the prior art. This is because Vähäkuopus et al teach the technical feature of nozzle array with a paper web (see abstract and Fig. 1), but they teach the coating of a paper web using a materially different method than that of claims 11-16 (see claims 1-18). Accordingly, the prior art of the record supports restriction of the claimed subject matter in to the groups as mentioned immediately above.

Information Disclosure Statement(IDS)

The information disclosure statement filed 2/21/06 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because the international search report is not a document where the list of reference is not included in PTO-1449. 37 CFR 1.98(a)(1) requires the following: (1) a list of all patents, publications, applications, or other information submitted for consideration by the Office; (2) U.S. patents and U.S. patent application publications listed in a section separately from citations of other documents; (3) the application number of the application in which the information disclosure statement is being submitted on each page of the list; (4) a column that provides a blank space next to each document to be considered, for the examiner's initials; and (5) a heading that clearly indicates that the list is an information disclosure statement. The information disclosure statement has been placed in the application file, but the international search report and international preliminary report listed under NPL are improper references and therefore have not been considered.

Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bernert et al. (US 6063450).

Claims 11-16 are drawn to a method of coating a paper web by selecting a plurality of high-pressure liquid coating nozzles, in which each nozzle has an acting variable. The acting variable is proportional to a liquid volume coating flow through said nozzle at a given pressure and the diameter of each nozzle orifice varies from a mean of all the nozzles of the array by less than 5% and 2% of the mean. The method also connects the nozzles to a source of high-pressure liquid coating and spraying the paper web with the coating. The acting variable and measurement of diameter are determined optically.

Bernert et al. teach a method for directly or indirectly applying a liquid medium onto a paper web (col. 1, 10-18). The nozzle array (col. 2, 13) helps to apply a high dynamic pressure liquid medium on to an application roll (col. 3, 36-43). Bernert does not teach the acting variable, selection of nozzles according to the variation in the said variable, and the way of measuring the variables.

It is well known in the art that nozzle manufacturers use routine optimization to manufacture nozzles with the least amount of deviation in its performance. The size of the orifice and pressure are directly related to the flow of the liquid volume coating. Thus, a varying “acting variable” that is defined by varying nozzle open area characterized by the diameter of a throat of a nozzle will be proportional to the flow coming out of the nozzle orifice. However, when a selection of nozzles are found to have a significant impact on the uniformity of the coating due to its variation in flow quantity, similar routine optimization can be carried out to maximize the uniformity while minimize the impact of manufacture error by selecting nozzles with the least variation in its orifice. One of ordinary skill in the art at the time of the invention would know that it would have been obvious to select nozzles with the least deviation in orifice size so an uniform coating can be achieved on a paper web. Since it has been held that when the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See In re Boesch, 205 USPQ 215 (CCPA 1980).

Conclusion

It is noted that there are numerous documents available in the state of art that are relevant teaching about routine optimization to evidence to examiner's position: Clear examples of such optimizations are shown by Brooks et al. (US 4282533, col. 2, 28-52) in which optical inspection is introduced to detect common defects encountered in nozzles such as varying orifice size and Miura et al. (US 4728392, col. 8, 23-37) in which a method is introduced to manufacture precisely dimensioned nozzle openings. An example of such optimization is shown by Lombardo et al. (US 4318483, col. 2, 31-35) in which a microscope was used to view drop formations so it can be adjusted for a given nozzle diameter and flow rate.

Claims 6-16 are pending, claims 6-10 are withdrawn, and claims 11-16 are rejected.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to XIAO ZHAO whose telephone number is (571)270-5343. The examiner can normally be reached on Monday to Friday 7:30 am EST to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571)272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Xiao S Zhao/
Examiner, Art Unit 4172

/Vickie Kim/
Supervisory Patent Examiner, Art
Unit 4172